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ABSTRACT

The effects of interactive television (ITV) learning on the attitudes and achievement of different types of learners were investigated using as subjects 97 students who were taking courses at remote sites through the University of Southern Maine ITV system. First, a Likert-type scale for measuring learner preferences was developed and validated. The instrument, the Learning Preference System (LPS), recognized six learner preference types: (1) enthusiastic learner; (2) grade-conscious learner; (3) collaborative learner; (4) confident learner; (5) reticent learner; and (6) structured learner. Data collected for the study included the students' attitudes toward the ITV system at the end of the semester based on the LPS, demographic information, and end of course grades. Analyses of these data indicated that there were distinct learner preferences among students which did not vary according to sex. Age differences were found, however, with younger learners (21 years or younger) more likely to be confident learners, and older learners (22 years or older) more likely to be enthusiastic, reticent, or structured learners. It was also found that learner preference seemed to have an impact on the students' perception of the course content, although this preference appeared to be independent of the medium of delivery. Finally, older students indicated that they felt the ITV system was an effective way to teach these courses, an attitude which may have reflected time constraints, the purposefulness of their learning, and/or maturity level. The text is supplemented by eight tables, and two appendices contain copies of the learner preference scale questions and the student questionnaire. (13 references) (EW)

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A STUDY OF THE RELATIONSHIP BETWEEN LEARNER PREFERENCE AND STUDENT ACHIEVEMENT AND ATTITUDES IN AN INSTRUCTIONAL TELEVISION COURSE

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A STUDY OF THE RELATIONSHIP BETWEEN LEARNER PREFERENCE AND STUDENT ACHIEVEMENT AND ATTITUDES IN AN INSTRUCTIONAL TELEVISION COURSE

by

Judith L. Nadel

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Introduction

In the past several years, researchers and educators have become increasingly more interested in using instructional television (ITV) as a means of delivering effective instruction for students. To date, attempts to evaluate the effectiveness of televised instruction have produced mixed results. (Thorman, 1975; Brendon, 1977; Zalatino and Zalick, 1979; Johnson et.al, 1985; Carver and MacKay, 1986; Chu and Schramm, 1967; Harold, 1977; Hult, 1980; Porter, 1983; Denton et.al, 1985; and Nadel and Silvernail, 1987.)

During the past three years, the Testing and Assessment Center of the University of Southern Maine (USM) has conducted several evaluation studies of the University ITV system. The purpose of the evaluations have been to determine the effectiveness of the ITV system. Briefly, the USM instructional television system is similar to many being proposed for use by other universities. It consists of multiple studio (broadcast) and remote (receive) sites. Using a combination of microwave signals, fiber optic cabling, and local cable television systems, live instruction is broadcast from a studio classroom to three remote site classrooms. Instructors provide live in-class instruction to students in a studio classroom and students in the three remote site classrooms receive the same instruction simultaneously by means of television monitors in the classrooms. A two-way audio system provides for voice interaction between the instructors and

students, and a two-way video system allows instructors and students to see each other.

The preliminary evaluations have indicated that, when the unit of analysis is whole class, achievement and attitudes do not differ between those students receiving classroom instruction by live in-class instruction and those who receive instruction by instructional television (ITV). However, further analysis has suggested that the ITV system has different effects on different types of learners. Analysis of surveys completed by students and structured interviews have suggested several intervening variables which may have an impact on individual students' attitudes and achievement. These are preferences for learning modes and learning styles, academic self-confidence, and sources of academic motivation. However, to date none of these characteristics have been measured using valid psychometric instruments to determine how and to what extent they influence student achievement and attitudes. Thus, the purpose of this study was two fold. First, the purpose was to identify or create a valid instrument with which to second, determine the effects of selected student characteristics on the achievement and attitudes of students receiving classroom instruction by means of instructional television. The variables to be studied were preference for learning style, locus of control variables, and motivation factors.

Methodology

An extensive review of the literature and research on adult learning failed to identify an appropriate instrument to measure learner preference. Thus, phase one of this study consisted of developing and validating an instrument appropriate for use in measuring learner preferences of college level students.

Based on a review of the literature and analysis of data from previous studies mentioned earlier, a pool of items was generated by a team of individuals with expertise in adult learning theory and item and test design. An instrument entitled the Learner Preference Scale (LPS) (See Appendix A) was developed in order to measure student learning preferences. Specifically, the instrument was designed to measure differences in learning modes, academic self-confidence and sources of academic motivation.

During the initial development of the LPS (Fall, 1987), 115 college students enrolled in an introductory communications course completed the pilot scale. The average age of respondents was 26.1 years.

The pilot instrument was composed of 94 Likert-type items. Each item was responded to on a one through six scale, a high response indicating that the person strongly disagreed with the statement. The item scores were recoded for analysis and interpretation purposes so that a high score on the item would indicate a high level of agreement with the statement. Scores were computed by adding the responses for the items in each subscale.

Factor analysis with varimax rotation was completed on the 94 item pilot instrument. On the basis of the factor analysis and reliability checks, the 94-item scale was reduced to 48 items with 8 items for each of the six learner preference types (See Appendix A). Steps leading to this final 48-item scale included the following:

1. A principal components analysis was used to determine the amount of variance in the sample. Based on the findings of this analysis, six factors were determined (those with eigenvalues of 1.0 or greater).

2. A varimax rotation was used to make the factors more interpretable. (This method attempts to maximize the number of variables that have high loadings on a factor.) Resulting from this analysis were six factors with eight items on each factor.

3. A final confirmational factor analysis was conducted using the 48 items, 6 factors and varimax rotation. This confirmed the validity of the first factor analysis with all items loading the same for both analyses. Forty-eight percent (48%) of the variance was accounted for on the final 48-item scale (Table 1 and 1A).

Insert Table 1 and 1A here

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4. Crombach's alpha reliability coefficients were calculated for the final factor structures of each scale. Table 2 summarizes the alpha coefficients.

Insert Table 2 here

The correlational evidence indicated that the items on a particular scale tended to be responded to similarly, which indicated that each subscale measures distinct preferences from those measured by the other subscales.

A correlation matrix was computed based on the sample data. Table 3 is a summary of how the subscales intercorrelate. This is further evidence of the distinct preferences measured.

Insert Table 3 here

A review of the items within each factor by the team resulted in the identification of learner preference types: These are:

Factor 1. Enthusiastic learner

Factor 2. Grade-conscious learner

Factor 3. Collaborative learner

Factor 4. Confident learner

Factor 5. Reticent learner

Factor 6. Structured learner

Enthusiastic Learner

This individual is enthusiastic about learning. His/her motivation stems from a genuine desire to learn for the sake of gaining new information about a variety of topics. This person is fully involved in courses and is truly interested.

Grade-conscious Learner

This individual is performance oriented and is driven by external signs of success such as grades in class. He/she places a greater value on the grade than the knowledge gained.

Collaborative Learner

This person is a collaborative or cooperative learner. Although participation in group activities such as projects and/or discussion is important, this person is confident in his/her own ability to learn what is important, and may take a leadership role in groups.

Confident Learner

This persons knows his/her abilities, tends to set realistic and reachable goals and usually accomplishes them. He/she operates on hope of success rather than fear of failure.

Reticent Learner

This individual is reserved or guarded as a learner. He/she does not like to be noticed but rather prefers to be in the background in a class situation. This person performs at a level which will get him/her by.

Structured Learner

This person is eager to learn but needs a high level of structure and organization. He/she depends on authority to provide that

structure and organization. He/she prefers to have information imparted from an authority figure rather than seek it on his/her own.

Insert Table 4 here

Turning to phase two of the study, the sample also completed locally developed Likert-type scales designed to measure student attitudes toward the ITV system at the end of the semester (see Appendix B). Demographic data were obtained from student files and end of course grades were collected. ANOVA techniques were used to determine if there were significant differences in achievement and attitudes for individuals with different learner preferences.

Findings

Student data were analyzed using the 48-item scale resulting from the factor analysis. Analysis of the data revealed that there was a similar number of students who were strong on each of the six learning dimensions. (Strong is defined as scoring in the top 25% of the group.) The following scores on each of the subscales indicate that students have a strong preference for that particular learner preference type:

Factor	Learner Preference Type	Score
1	Enthusiastic Learner	39+
2	Grade-conscious Learner	35+
3	Collaborative Learner	41+
4	Confident Learner	29+
5	Reticent Learner	37+
6	Structured Learner	35+

Table 5 summarizes the scores for each of the six learner preference types for the sample group.

Insert Table 5 here

Turning to Table 6, Student Profile, it appears that as a group within each subscale, student scores which are high or strong on one type do not meet the criterion for strength on any of the other five types. The numbers within each subscale indicate, however that there is some overlap (e.g. individual students may be strong on more than one type).

Insert Table 6 here

There were no significant differences between males and females with regard to learner preference. Males and females scored similarly on each of the subscales. (Table 7)

Insert Table 7 here

There were, however, some differences with respect to age. The sample was divided into two age groups. Group 1 consisted of students 22 years of age and older (N=46), and group 2 was composed of students 21 years or younger (N=51). The older group scored significantly higher than the younger group on three of the dimensions: enthusiastic learner, reticent learner, and structured learner. The younger group scored significantly higher on the confident learner dimension. (Table 8)

Insert Table 8 here

Analysis of high and low scorers within each learner preference type was conducted to examine differences in attitudes toward medium of instruction, course content and overall attitude toward the course. Students scoring in the upper 25% (high scorers) of each dimension were compared with students scoring in the lower 25% (low scorers) of the same factor to determine if and where differences in attitudes might be found.

There were no significant differences in attitudes toward medium of instruction between high and low scorers within each learner type. Student scores indicated an overall positive attitude toward the ITV system as a medium of instruction.

Turning to attitudes toward course content, one significant difference was noted with respect to high versus low scorers on one learner preference type: the enthusiastic learner type. Students scoring high (N=32) on this type rated the course content more positively than low scorers (N=23).

When broken down by age group, older students (N=47) had significantly more positive attitudes toward course content than did younger students (N=50).

Analysis of data with regard to overall attitudes toward the course revealed only three significant differences; two based on learner preference and one for age. These were:

1. Students who scored low on the collaborative learner scale rated the course more positively than did those who scored high.

2. Students who scored high on the structured learner type responded more positively toward the use of instructional aids in the course than did those who scored low.

3. Older students had significantly more positive attitudes toward the ITV system as an effective way to teach this course than younger students.

Conclusions

The purpose of this research study was to determine the effects of selected student characteristics on the achievement and attitudes of students receiving classroom instruction by means of instructional television. Through the development and validation of a scale, the Learner Preference Scale (LPS), six distinct learner preference types were ascertained.

Analysis of student data using the LPS revealed several findings. First, there are distinct learner preferences among students. These learner preferences do not vary according to sex. That is, there is no difference in the frequency with which males and females exhibit the six different learner preference types. There are differences, however with respect to age. Analysis of the data revealed that older students tend to score significantly higher on the enthusiastic learner, reticent learner and structured learner types than younger students. Younger students, on the other hand, scored significantly higher on the confident learner type than their older counterparts. These findings suggest that although older students may be self motivated, eager to learn and take an active part in the learning process, they may feel insecure in the classroom and may need more structured learning situations such as specific directions from the instructor about how to proceed on certain tasks. The younger student, on the other hand, tends to be more confident about his/her abilities to perform well academically.

Second, learner preference seems to have an impact on student perception toward course content. Is this related to instructor style or instructor knowledge of the content presented in class? This question may be explored further by collecting data on additional samples of students and comparing these data with respect to learner preferences and attitudes toward course content.

Third, results indicated that learner preference is independent of the medium of delivery. This finding is consistent with Ely's summary of Schramm's research finding that "students learn from any medium, in school or out, whether they intend to or not...providing that the content of the medium leads them to pay attention." (Ely, 1987, p.74) After an extensive review of the research, Schramm concludes that "a teacher can feel a great deal of confidence that motivated students will learn from any medium if it is competently used and adapted to their needs." (Schramm, 1977, p. 267)

The most positive attitudes toward the course were found in students who scored low on the collaborative learner type. This suggests that students who are collaborative learners tend to prefer courses which offer more opportunities for leadership and cooperation with peers.

Students with high scores on the structured learner type rated use of instructional aids more positively than those who scored low. This suggests that because of the characteristics of the structured learner, that is, because this learner needs a high level of structure and organization in his/her learning experience, visual or instructional aids are more appreciated by these individuals.

Lastly, older students indicated that they felt the ITV system is an effective way to teach this course. This may be related to time constraints, the purposefulness of their learning and/or maturity level,

however, additional research is needed to ascertain the relationship between these variables and student attitudes toward the ITV system.

The findings of this study have major implications for further research. In relation to the Learner Preference Scale, further validity studies must be conducted. With additional samples of students, and continued factor analysis studies, the validity and reliability of the scale will be strengthened. Once finalized, the scale may be used in a number of ways with a variety of audiences. Although the scale was developed with students of ITV courses in mind, it may also be used with traditional classroom students. For example, the scale could suitably be used with developmental students to identify areas of strength and weakness, and to help determine the kinds of classroom situations which are appropriate for their learner preference type. The scale could also be used in the identification of the appropriate course instructional style for certain specific student audiences.

With respect to the ITV system and its impact on the learning process of individual students, further research is needed with students enrolled in courses with differing instructional formats. That is, will the evaluation results be the same for courses designed to promote learning through, for example, class discussion? To date, the primary mode of instruction in the ITV courses has been lecture, with a minimum of class discussions. What will be the impact of the system on students in courses designed to be highly interactive between instructors and students, and students and students? A related question is the impact on courses designed to promote collaborative learning.

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LEARNER PREFERENCE SCALE

SUBSCALE KEY

Factor 1: Enthusiastic Learner

Factor 2: Grade-conscious Learner

Factor 3: Collaborative Learner

Factor 4: Confident Learner

Factor 5: Reticent Learner

Factor 6: Structured Learner

TABLE 1
LEARNER PREFERENCE SCALE

ROTATED FACTOR MATRIX

ITEM	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
26	+.76	-.08	+.09	+.27	-.11	+.10
12	+.73	+.01	-.04	+.05	-.15	+.04
27	+.65	-.16	+.15	+.11	-.23	+.17
40	-.64	+.11	+.12	+.07	+.20	+.11
18	+.62	+.19	+.16	+.15	-.11	+.02
43	+.56	+.34	+.11	+.05	-.21	-.10
4	+.52	+.22	+.17	+.20	-.03	-.24
38	-.47	-.02	+.17	-.14	+.30	+.16
47	-.07	+.75	+.07	+.01	-.01	-.05
22	+.08	+.68	-.14	-.08	+.03	-.04
20	-.08	+.67	+.05	+.04	+.02	-.05
48	+.24	+.64	+.03	-.24	+.14	-.01
15	+.06	+.64	-.01	+.09	-.01	+.15
46	+.38	+.53	-.15	+.23	+.08	-.03
13	-.06	+.50	+.14	-.15	+.05	+.18
30	-.25	+.39	-.07	+.20	+.08	+.31
39	+.02	-.00	+.76	-.04	+.01	-.04
16	+.07	+.11	+.75	-.04	-.15	-.14
34	+.05	-.12	+.67	+.11	+.06	+.04
24	+.04	+.10	-.67	-.01	+.24	-.05
7	-.14	-.08	+.53	+.13	+.16	+.08
14	+.15	+.11	+.52	-.16	-.44	-.18
17	+.10	+.34	+.48	+.22	-.16	-.25
33	+.09	+.17	+.46	+.13	+.17	-.10
32	+.06	-.01	-.09	+.78	-.21	+.64
8	+.08	-.04	+.07	+.69	-.30	+.11
23	+.16	+.06	+.03	+.67	+.09	-.00
19	+.24	+.24	+.27	+.58	-.06	-.03
45	-.03	+.38	+.10	-.55	+.30	-.03
6	+.16	+.08	-.00	+.53	+.01	-.17
28	+.21	-.08	+.20	+.45	-.15	-.12
35	-.10	-.07	-.05	+.42	-.00	-.02
31	+.25	-.07	+.14	+.14	-.68	-.11
41	-.15	+.15	+.12	-.08	+.59	-.12
3	+.12	+.10	+.44	+.08	-.57	-.07
1	+.32	+.07	+.17	-.02	-.56	+.23
36	-.02	+.34	+.02	-.34	+.53	+.11
2	-.04	+.09	-.20	+.04	+.52	+.32
29	-.29	+.11	+.08	-.19	+.50	-.17
10	-.09	-.15	+.25	-.24	+.48	-.00
44	-.01	+.13	-.07	-.00	-.18	+.69
21	-.06	+.21	-.01	-.23	-.03	+.69
5	+.19	-.00	+.14	+.03	+.19	-.64
42	-.21	+.03	+.12	+.02	+.23	+.56
25	+.38	+.06	-.16	-.18	+.26	+.48
11	-.26	+.16	+.27	-.03	-.15	-.47
9	+.16	-.13	+.14	+.19	+.03	+.46
37	-.39	+.07	+.09	+.28	-.05	-.45

TABLE 1A
LEARNER PREFERENCE SCALE

ROTATED FACTOR MATRIX

ITEM	FACTOR 1	FACTOR 2	FACTOR 3	FACTOR 4	FACTOR 5	FACTOR 6
26	+.76					
12	+.73					
27	+.65					
40	-.64					
18	+.62					
43	+.56					
4	+.52					
38	-.47					
47		+.75				
22		+.68				
20		+.67				
48		+.64				
15		+.64				
46		+.53				
13		+.50				
30		+.39				
39			+.76			
16			+.75			
34			+.67			
24			-.67			
7			+.53			
14			+.52			
17			+.48			
33			+.46			
32				+.78		
8				+.69		
23				+.67		
19				+.58		
45				-.55		
6				+.53		
28				+.45		
35				+.42		
31					-.68	
41					+.59	
3					-.57	
1					-.56	
36					+.53	
2					+.52	
29					+.50	
10					+.48	
44						+.69
21						+.69
5						-.64
42						+.56
25						+.48
11						-.47
9						+.46
37						-.45

TABLE 2

LEARNER PREFERENCE SCALE

Coefficients of Internal Reliability

N=99

Factor	1	2	3	4	5	6
Alphas	.82	.79	.79	.79	.79	.73

TABLE 3

LEARNER PREFERENCE SCALE

Intercorrelations of 48-item Scale

		Learner Preference					
		1	2	3	4	5	6
Learner Preference	1	1.0					
	2	.12	1.0				
	3	-.02	-.03	1.0			
	4	-.46	-.19	.09	1.0		
	5	.35	.09	-.02	-.38	1.0	
	6	-.13	-.22	.07	.15	-.14	1.0

TABLE 4

LEARNER PREFERENCE SCALE (48-ITEM)

FACTOR ANALYSIS

ENTHUSIASTIC LEARNER		**FACTOR LOADINGS**
26.	I am eager to learn about areas covered in class.	+.76
12.	I attend classes because I want to learn something.	+.73
27.	Generally speaking, I find most classroom activities (i.e., discussions, projects, etc.) interesting.	+.65
40.	I seldom get excited about material covered in a course.	-.64
18.	I like to learn for reasons such as my own personal gain and benefit.	+.62
43.	I enjoy college because of the opportunity it gives me to develop new skills.	+.56
4.	My reasons for attending college are driven by my desire to gain knowledge.	+.52
38.	The major influence in my course selection is convenience rather than content.	-.47
GRADE-CONSCIOUS LEARNER		
47.	I am concerned about how well I do in my courses in comparison to my classmates.	+.75
22.	I worry a great deal about how well I will do on course examinations.	+.68
20.	I like to know how other students in my class did on a test so I can compare myself to them.	+.67
15.	I like to impress others with my good grades.	+.64
48.	I am very concerned whether I will learn what I need to know to do well in my courses.	+.64
46.	Performing well in all my courses is very important to me.	+.53
13.	My feeling of self-worth depends on how much I accomplish.	+.50
30.	Getting good grades is the most important reward for studying.	+.39

COLLABORATIVE LEARNER		FACTOR LOADINGS
39.	I learn more if group work is part of my courses.	+.76
16.	Group projects are among the kinds of things I enjoy about college.	+.75
24.	I prefer to work by myself on projects rather than working in groups.	-.67
34.	Studying for tests with a small group of students helps prepare me better than if I study alone.	+.67
7.	I prefer taking a course which allows me to pursue my own interests.	+.53
14.	I prefer courses that involve a great deal of class discussion.	+.52
17.	I feel that my ideas about content are often as good as those in a textbook.	+.48
33.	I like independent-type study courses in which I make decisions on process and schedule.	+.46

CONFIDENT LEARNER		
32.	I am confident I will do well on course examinations.	+.78
8.	I am confident in my abilities to learn important course material.	+.69
23.	I am a good judge of how much time I need to spend learning course material.	+.67
19.	I always expect to achieve the academic goals I set for myself.	+.58
45.	Sometimes I wonder if I will be able to maintain good grades.	-.55
6.	I create ways to accomplish my goals.	+.53
28.	I feel confident about my abilities to be successful in life.	+.45
35.	I think I can determine what the important content issues are in a course.	+.42

RETICENT LEARNER		FACTOR LOADINGS
31.	During discussions in class, I usually have something to say.	-.68
41.	I usually sit where the instructor is unlikely to notice me.	+.59
3.	When I have a new idea about a topic, I like to share it in class.	-.57
1.	If the course material is not clear, I usually ask for further explanation.	-.56
36.	I am comfortable about taking a course about which I know nothing.	+.53
2.	I'd rather listen to others discuss a topic than contribute my own ideas.	+.52
29.	If I do not understand course material, I just forget about it.	+.50
10.	I study just enough to get by in my courses.	+.48
STRUCTURED LEARNER		
21.	I need a lot of structure and organization in my classes.	+.69
44.	I enjoy classes that are highly organized.	+.69
5.	I like classes that do not have a lot of structure.	-.64
42.	I tend not to think or work on problems or issues in a field unless they were first covered in the text or lecture.	+.56
25.	I think instructors are the best judges of what is important in a course.	+.48
11.	I have my own ideas about how a course should be conducted.	-.47
9.	I learn best when the instructor presents a lecture.	+.46
37.	I do not like a teacher to tell me what I have to learn.	-.45

TABLE 5

LEARNER PREFERENCE SCALE

N=102

SUBSCALES	$\bar{X}$	S.D.
ENTHUSIASTIC LEARNER	36.556	4.647
GRADE-CONSCIOUS LEARNER	31.212	6.257
COLLABORATIVE LEARNER	36.404	5.752
CONFIDENT LEARNER	25.343	6.100
RETICENT LEARNER	34.697	4.628
STRUCTURED LEARNER	31.454	5.458

TABLE 6

LEARNER PREFERENCE SCALE

STUDENT PROFILE

	N=33	N=30	N=27	N=31	N=33	N=25
	ENTHUSIASTIC LEARNER	GRADE-CONSCIOUS LEARNER	COLLABORATIVE LEARNER	CONFIDENT LEARNER	RETICENT LEARNER	STRUCTURED
ENTHUSIASTIC LEARNER	41.515	32.188	35.576	20.968	36.667	30.188
GRADE-CONSCIOUS LEARNER	37.767	38.033	36.700	23.655	35.467	30.138
COLLABORATIVE LEARNER	6.741	29.654	43.481	26.038	35.148	32.423
CONFIDENT LEARNER	34.000	29.194	36.323	32.548	32.645	33.567
RETICENT LEARNER	38.212	31.906	36.424	22.788	39.485	30.219
STRUCTURED LEARNER	35.400	30.720	36.920	28.167	33.720	38.280

TABLE 7

LEARNER PREFERENCE SCALE

SUBSCALES BY SEX

SUBSCALES	FEMALES N=62		MALES N=39		
	$\bar{X}$	S.D.	$\bar{X}$	S.D.	Sig.
ENTHUSIASTIC LEARNER	36.950	5.010	35.816	3.979	N.S.
GRADE-CONSCIOUS LEARNER	30.797	6.787	31.667	5.382	N.S.
COLLABORATIVE LEARNER	36.267	5.857	36.789	5.624	N.S.
CONFIDENT LEARNER	24.576	6.052	26.641	6.055	N.S.
RETICENT LEARNER	34.500	5.054	35.026	3.976	N.S.
STRUCTURED LEARNER	31.695	5.658	31.243	5.155	N.S.

TABLE 8

LEARNER PREFERENCE SCALE

SUBSCALES BY AGE GROUP

GROUP 1: 22 YEARS AND OLDER GROUP 2: 21 YEARS AND YOUNGER

SUBSCALES	GROUP 1 $\bar{X}$	N=46 S.D.	GROUP 2 $\bar{X}$	N=51 S.D.	Sig.
ENTHUSIASTIC LEARNER	37.696	5.266	35.490	3.765	0.021 *
GRADE-CONSCIOUS LEARNER	30.370	6.881	31.726	5.419	0.288
COLLABORATIVE LEARNER	35.457	5.954	37.333	5.502	0.112
CONFIDENT LEARNER	23.533	5.731	27.173	5.877	0.003 *
RETICENT LEARNER	36.130	4.824	33.392	4.167	0.004 *
STRUCTURED LEARNER	32.978	4.595	29.980	5.727	0.006 *

* Significant at .05 level

APPENDIX A

LEARNER PREFERENCE SCALE

48-ITEM SCALE

LEARNER PREFERENCE SCALE

	Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree
1. If the course material is not clear, I usually ask for a further explanation.	1	2	3	4	5	6
2. I'd rather listen to others discuss a topic than talk about my own ideas.	1	2	3	4	5	6
3. When I have a new idea about a topic, I like to share it in class.	1	2	3	4	5	6
4. My reasons for attending college are driven by my desire to gain knowledge.	1	2	3	4	5	6
5. I like classes that do not have a lot of structure.	1	2	3	4	5	6
6. I create ways to accomplish my goals.	1	2	3	4	5	6
7. I prefer taking a course which allows me to pursue my own interests.	1	2	3	4	5	6
8. I am confident in my abilities to learn important course material.	1	2	3	4	5	6
9. I learn best when the instructor presents a lecture.	1	2	3	4	5	6
10. I study just enough to get by in my courses.	1	2	3	4	5	6
11. I have my own ideas about how a course should be conducted.	1	2	3	4	5	6

	Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree
12. I attend classes because I want to learn something.	1	2	3	4	5	6
13. My feelings of self-worth depend on how much I accomplish.	1	2	3	4	5	6
14. I prefer courses that involve a great deal of class discussion.	1	2	3	4	5	6
15. I like to impress others with my good grades.	1	2	3	4	5	6
16. Group projects are among the kinds of things I enjoy about college.	1	2	3	4	5	6
17. I feel that my ideas about content are often as good as those in a textbook.	1	2	3	4	5	6
18. I like to learn for reasons such as my own personal gain and benefit.	1	2	3	4	5	6
19. I always expect to achieve the academic goals I set for myself.	1	2	3	4	5	6
20. I like to know how other students in my class did on a test so I can compare myself to them.	1	2	3	4	5	6
21. I need a lot of structure and organization in my classes.	1	2	3	4	5	6
22. I worry a great deal about how well I will do on course examinations.	1	2	3	4	5	6
23. I am a good judge of how much time I need to spend learning course material.	1	2	3	4	5	6
24. I prefer to work by myself on projects rather than working in groups.	1	2	3	4	5	6

	Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree
25. I think instructors are the best judges of what is important in a course.	1	2	3	4	5	6
26. I am eager to learn about areas covered in class.	1	2	3	4	5	6
27. Generally speaking, I find most classroom activities (i.e. discussions, projects, etc.) interesting.	1	2	3	4	5	6
28. I feel confident about my abilities to be successful in life.	1	2	3	4	5	6
29. If I do not understand course material, I just forget about it.	1	2	3	4	5	6
30. Getting good grades is the most important reward for studying.	1	2	3	4	5	6
31. During discussions in a class, I usually have something to say.	1	2	3	4	5	6
32. I am confident I will do well on course examinations.	1	2	3	4	5	6
33. I like independent-type courses in which I make decisions on process and schedule.	1	2	3	4	5	6
34. Studying for tests with a small group of students helps prepare me better than if I study alone.	1	2	3	4	5	6
35. I think I can determine what the important content issues are in a course.	1	2	3	4	5	6
36. I prefer asking instructors questions privately rather than asking questions in class.	1	2	3	4	5	6

	Strongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Strongly Disagree
37. I do not like a teacher to tell me what I have to learn.	1	2	3	4	5	6
38. The major influence in my course selection is convenience rather than content.	1	2	3	4	5	6
39. I learn more if group work is part of my courses.	1	2	3	4	5	6
40. I seldom get excited about material covered in a course.	1	2	3	4	5	6
41. I usually sit where the instructor is unlikely to notice me.	1	2	3	4	5	6
42. I tend not to think or work on problems or issues in a field unless they were first covered in the text or lectures.	1	2	3	4	5	6
43. I enjoy college because of the opportunity it gives me to develop new skills.	1	2	3	4	5	6
44. I enjoy classes that are highly organized.	1	2	3	4	5	6
45. Sometimes I wonder if I will be able to maintain good grades.	1	2	3	4	5	6
46. Performing well in all my courses is very important to me.	1	2	3	4	5	6
47. I am concerned about how well I do in my courses in comparison to my classmates.	1	2	3	4	5	6
48. I am very concerned whether I will learn what I need to know to do well in my courses.	1	2	3	4	5	6

APPENDIX B

STUDENT QUESTIONNAIRE

University of Southern Maine

a unit of the University of Maine

Classroom Site

Portland (30)_____
Gorham (31) _____
Saco (32) _____
Sanford (33) _____
Other (39) _____

STUDENT QUESTIONNAIRE # 1

Social Security No:_____Sex: F___ M___ Date_____

Course_____
(Course No.) (Section No.) (Course Title)

Please indicate your level of agreement with the following statements by placing a (✓) in the appropriate place.

1. The presentation of the course materials was as good as I have found in other courses I have taken at USM.

Stongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Stongly Disagree

2. I was satisfied with the amount of individual contact I had this semester with the instructor.

Stongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Stongly Disagree

3. I had ample opportunity to ask questions during class time.

Stongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Stongly Disagree

4. My papers/exams/assignments were returned on a timely basis.

Stongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Stongly Disagree

5. The visual/instructional aids used in this class were useful in helping me understand the course material.

Stongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Stongly Disagree

6. The instructional television system is an effective way to teach this course.

Stongly Agree	Agree	Mildly Agree	Mildly Disagree	Disagree	Stongly Disagree

7. Overall, how would you rate the instructor?

Excellent	Above Average	Average	Below Average	Poor

8. What is your overall rating of this course?

Excellent	Above Average	Average	Below Average	Poor

In the following items you are presented two options. Please place a check (✓) beside the option you would choose.

9. If you had to choose between:

   a. _____ enrolling in an instructional television section of this course.

   or

   b. _____ enrolling in a live classroom section of this course.

10. If you had to choose between:

   a. _____ enrolling in an instructional television section of this course.

   or

   b. _____ choosing a course in a different content area.

11. If you had to choose between:

   a. _____ enrolling in an instructional television course near your home.

   or

   b. _____ enrolling in a live classroom course farther from your home.

12. If you had to choose between:

   a. _____ enrolling in an instructional television course at a time most convenient to your time schedule.

   or

   b. _____ enrolling in a live classroom course at a time less convenient to your time schedule.

13. On a scale of 1-10 (10 being best), how would you rate the overall quality of the instructional television classes of the course? (If applicable) _____ (1-10)

14. On a scale of 1-10 (10 being best), how would you rate the overall quality of the live classroom classes of this course? (If applicable) _____ (1-10)

15. What do you think are the strengths and weaknesses of this instructional television course?

Strengths	Weaknesses

16. What suggestions would you make for improving future ITV courses? _____

17. If you had a choice would you take another instructional television course?

Yes____ No____ Please explain _____

STUDENT QUESTIONNAIRE # 2
PART I

Directions: Thinking only of the content of the course, place an X in the one space of the seven between each adjective pair that best describes your opinion of the content of this course. The closer you place your X toward one adjective or the other, the more you think the adjective better describes the course content than the other.

Example: For example, if you think the content of this course was very meaningful you would place an X in the space closest to that adjective.

meaningful | | | | | | | meaningless

CONTENT OF THIS COURSE

1. interesting | | | | | | | boring
2. important | | | | | | | unimportant
3. powerful | | | | | | | weak
4. worthless | | | | | | | valuable
5. good | | | | | | | bad

PART II

Directions: Now thinking only of the medium of instruction, place an X in the one space of the seven between each adjective pair that best describes what you think the medium of instruction was like in this course. The closer you place the X toward one adjective or the other, the more you think the adjective better describes the medium of instruction than the other.

MEDIUM OF INSTRUCTION

1. good | | | | | | | bad
2. weak | | | | | | | powerful
3. annoying | | | | | | | pleasing
4. successful | | | | | | | unsuccessful
5. negative | | | | | | | positive